



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,262	03/03/2005	Takashi Maeda	2005_0059A	8304
52349 7590 02/04/2009 WENDEROTH, LIND & PONACK L.L.P. 2033 K. STREET, NW SUITE 800 WASHINGTON, DC 20006				
EXAMINER				
CAZAN, LIVIU RADU				
ART UNIT		PAPER NUMBER		
3729				
MAIL DATE		DELIVERY MODE		
02/04/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,262

Applicant(s)

MAEDA ET AL.

Examiner

LIVIOUS R. CAZAN

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-32, 34, 35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-32, 34, 35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/18/08.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on 10/9/2008 has been fully considered and made of record.

Claim Objections

2. Claims 30-32, 34, 35, and 37-39 are objected to because of the following informalities: claim 30 has two steps (iii). The second step (iii) should be changed to --(v)--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 30, 31, 34, 35, and 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato (JP08008592; also see the corresponding machine translation).
5. Sato discloses a component mounting apparatus comprising: a vacuum generating source (22); nozzles (14) connected to said vacuum generating source, each of said nozzles having a control valve (inherently, some sort of valve is present, since each nozzle is controlled individually) capable of shutting a vacuum air passage; a mounting head (see Fig. 3) supported in a movable manner and holding said nozzles; a component recognition device (at S3) positioned to face said mounting head for recognizing components held by said nozzles; and a controller (implied, see para. [0006]) for controlling operations of the component mounting apparatus. Sato also discloses using the nozzles, connected to the single vacuum generating device, to

perform component pick up operations by picking up components (at S1) and perform component mounting operations by mounting said components onto respective predetermined mounting positions of a circuit substrate (at S6); and preventing occurrence of a defective circuit substrate, due to a component failing to be mounted on said circuit substrate, by (i) detecting an achieved vacuum pressure in one of said nozzles at a time of picking up a component by said one of said nozzles (implied; see Note below); (ii) recognizing the component picked up by said one of said nozzles by moving said one of said nozzles to a position (S3) opposing a component recognition device; (iii) detecting a relative vacuum pressure decrease of said one of said nozzles compared to said achieved vacuum pressure as a basis after said one of said nozzles has passed over said component recognition device (see paragraphs [0016] and [0017]); (iv) making a judgment that said one of said nozzles has lost the component due to dropping of the component, if the detected relative vacuum pressure decrease of said one of said nozzles exceeds a predetermined first threshold (see Note below), and (v) skipping a component mounting operation to be performed by said one of said nozzles (see paragraph [0017]).

6. **Note:** The sensor 23 outputs a value proportional to the vacuum pressure, i.e. this value corresponds to the achieved vacuum pressure. When a change in the output of the sensor is detected due to a movement of the component attached to the nozzle, mounting is skipped. It is readily apparent that if a component falls, it would cause a large change in the sensor output and therefore skip the mounting operation. It is unclear whether even the smallest change in the sensor output would cause this, i.e. a

threshold of essentially 0, or if some deviation in the sensor output is acceptable, but it is clear a threshold exists.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Yamamoto (WO01/43523 with US7065864 being used as an English language equivalent).

9. Sato discloses the same invention as the Applicant, except for utilizing a recognition camera (imaging device) to identify which of the nozzles has failed to pick up a component based on images obtained by the imaging device (camera). Sato does have a recognition station (S3), but does not appear to explicitly discuss identifying a nozzle has failed to pick up a component based on data from the recognition station.

10. Yamamoto discloses imaging each of the nozzles of a component mounting apparatus with an imaging device (Ref. # 207, col. 14, Ins. 21-24) and identifying which nozzle has failed to pick up a component based on the obtained images (col. 14, Ins. 42-46) in order to visually determine which nozzle failed to pick up a component, so component mounting step can be skipped (col. 14, Ins. 42-46). See Fig. 2.

11. At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the invention of Sato in view of the teachings of Yamamoto, by including using such an imaging device (i.e. camera) as the recognition station, whereby if a component is missing during component recognition, a failed

pickup operation is detected. One of ordinary skill in the art would have been motivated to do so in order to detect a failed pickup operation even before executing a pressure checking operation at the recognition station, thereby increasing the operational speed of the apparatus.

Response to Arguments

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIVIUS R. CAZAN whose telephone number is (571) 272-8032. The examiner can normally be reached on M-F 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID P. BRYANT can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729

/L. R. C./ 2/2/2009
Examiner, Art Unit 3729